

REMARKS

An Office Action was mailed on December 15, 2004. Therein, claims 1 - 15 were pending, of which claim 1 was the only independent claim.

By the foregoing claim 1 amended and new independent 16 is newly added. No new matter is added and the entry of the amendment is earnestly solicited. It should be appreciated that new independent claim 16 is offered as a compromise to bring the case to allowance.

The Examiner is respectfully requested to withdraw the finality of the present Office Action. While only minor amendment changes to bring the claims to US practice were made, the prior action nonetheless advanced the application by providing grounds why the rejections were incorrect. As such, Applicant respectfully submits the finality was unwarranted.

Claims 1-15 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claim 1 has been amended to recite that the baffles extend longitudinally. No new matter is added.

It should be appreciated that the amendment made in response to the rejection under 35 U.S.C. §112, second paragraph constitutes a cosmetic change to the claims and is not intended to effect the scope of such claims.

Accordingly, it is now respectfully requested that the Examiner withdraw the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1, 2 and 4-12 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,761,269 to Conger (Conger) in view of U.S. Patent No. 5,888,907 to Tomoyasu et al. (Tomoyasu) and European Patent Publication EP 41 51 91 A to Pozzetti (Pozzetti).

Claim 3 is indicated to be allowable if amended to include the base claim. Applicant expresses his gratitude to the Examiner for such an indication of allowance. However, Applicant respectfully submits that all claims as now pending are allowable over the cited references.

Claims 13-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Conger, Tomoyasu, Pozzetti in view of U.S. Patent No. 5,910,221 to Wu.

Before turning to traverse the substantive rejections, Applicant renews the objection that the cited references. As the Examiner correctly states to constitute prior art, the references must be from arts analogous to the claimed invention. A reference will be analogous art if it is from the same field of endeavor as the claimed invention or it is from a different field of endeavor, but the reference is reasonably related pertinent to particular problem solved by the invention. *In re Oetiker*, 977 F.2d 1443, 24 U.S.P.Q.2d 1443 (Fed.Cir.1992); *In re Clay*, 966 F.2d 656, 23 U.S.P.Q.2d 1058 (Fed.Cir.1992).

The Examiner's reasoning has been carefully considered, but Applicant respectfully disagrees. While in general the invention relates to the field of epitaxial growth of monocrystals on substrates, the specific invention relates to the shape of the reaction chamber. Therein, as described on page 11 lines 4-22 of Applicant's published application WO 00/58533, it was found that when components that are extraneous to the susceptor, such as the belljar, cap or gas distributor were replaced a negative effect occurred on gas distribution. The present invention

improves on this facet by altering the shape of the belljar and using small size dividing baffles to produce more uniform hat distribution in the epitaxial reactor. In contrast, Tomoyasu relates to a plasma etching apparatus wherein gas impinges on a target wafer. Therein, a different chamber than an epitaxial chamber is used and which directly impinges on the wafer. This is in contrast to the reaction chamber of the present invention, where the gas is prevented from striking the susceptor directly (see PCT published specification, page 7, lines 10 – 13). Accordingly, the Examiner is respectfully requested to withdraw the rejections.

Furthermore, applicant respectfully submits that the number of references – three and sometimes four – tends to indicate impermissible hindsight. Specifically, one skilled in the art would not be able to combine the references without using the present invention as a roadmap. It appears unlikely that one skilled in the art would select Tomoyasu from the plasma etching art to teach what the Examiner suggests. Accordingly, the Examiner is respectfully requested to withdraw the rejections.

Notwithstanding the above, none of the cited references, alone or in any combination, teach, disclose or suggest the claimed invention. The invention as claimed by claims 1 and 16 include the limitation of a zone extended above the belljar and a flat plate upon which gases impinge. This is claimed as a cylindrical zone to eliminate any interference in claim 1 and as a flat zone and a cylindrical zone to keep the belljar and susceptor apart in claim 16. The structural effect is the same that a passage is created wherein gases that have hit the flat plate are now redirected in a more advantageous way than in known art.

The Examiner has now taken the position that the *curved* surface in Figure 5 of Conger et al., is curved but rendering it flat is obvious. Applicant submits that it is not obvious that to make the

plate flat. Conger teaches that the curved plate is part of a narrow passageway for gases to travel. In the present application the gases have left a passageway in the diffuser and are redirected by the flat plate. Furthermore, the shape of "container" as a whole is not a matter of design choice since the specific shape of the container determines the success of the deposition of the wafers.

The present advantageous state of the art is embodied in the present application and claimed by independent claims 1 and 16. As previously stated, the diffuser combined with flat plate and the shoulder of the bell jar provide for a new system of distributing the gas inside the reaction chamber of an epitaxial reactor. This system is distinct from Conger because the gas coming from the manifold 16 enters a flow channel 112 formed by an annular passageway defined in the quartz dome above the graphite carousel 114. In Conger the gas is fed axially through a single channel on the top of the bell jar and then expanded in a hollow space defined between two hemispherical surfaces located at the top before reaching the susceptor. In the present invention the gas is directed by a plurality of pipes from the top of the bell jar towards a flat surface, which diverts it towards the shoulder 42 before reaching the susceptor. Therefore, the obviousness rejection can be withdrawn.

Applicant respectfully disagrees with the Examiner claiming baffles as being chemically inert with respect to the gases that the reactor is likely to encounter is an intended use claim and that it does not limit the claim. A matter is or is not inert. Since the art being claimed is a reaction chamber for an epitaxial reactor, one skilled in art would know which gases would be encountered and would be able to determine those materials that are chemically inert. As is well

understood, the fact that the English language is unable to render a better wording for this selection of material should not preclude Applicant from claiming it.

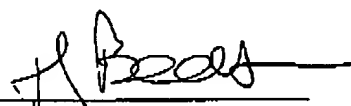
Furthermore, Applicant respectfully submits that the Examiner's wide characterizations of intended use are incorrect and that its seemingly indiscriminate application has a chilling effect. The Examiner is respectfully requested to revisit these characterizations and to reconsider their application.

From the foregoing, a person skilled in the art would have no logical reason for modifying the prior art structure in view of Conger's disclosure alone, or in combination with Tomoyasu and Pozzetti or by the inclusion of any other cited reference.

An effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that all claims are in condition for allowance. Passage of this case to allowance is earnestly solicited. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged on Deposit Account 50-1290.

Respectfully submitted,



Thomas J. Bean
Reg. No. 44,528

CUSTOMER NUMBER 026304
DOCKET NO.: SAIC 18.550 (100788-09749)